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ABSTRACT

The recurrence of problems in connection with research and development (R and D) activities supported by the Audio-Visual Center of Indiana University led to the development of a proposed control system. This paper lists those problems and examines the assumptions which must be met by the control system--that the Center will support all types of R and D activities, that there should be a single control process for all R and D projects, that there is a fundamental distinction between production and development activities, that all members of the staff are fully programed, that ideas and proposals for activities from individuals other than staff will be accepted and supported, and that there are a number of points at which the Center might wish to begin support of a promising idea. A basic model of the proposed control system is presented and detailed according to each of its three major stages: Stage I dealing with generation and initial screening of ideas, Stage II dealing with development and generation of initial screening of ideas, and Stage III covering project execution and control. (SH)

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School of Education

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Division of University Extension

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R&D PROJECT CONTROL SYSTEM

by

Gene L. Wilkinson

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This paper is a progress report on the development of a management control system for research and development projects within the Audio-Visual Center of Indiana University. The paper will list a number of problems which have been noted in past Audio-Visual Center R&D efforts, examine the assumptions which must be met by any control system, and provide an overview of the proposed system.

PROBLEMS WITH PAST R&D EFFORTS

A number of problems have been noted in connection with past and present research and development activities supported by the Audio-Visual Center. Among these problems are:

1. a lack of co-ordination between the research activities of the faculty and the operational needs of the Audio-Visual Center,
2. a lack of administration control over the types of research questions asked,
3. a failure to identify the research and development activities engaged in by individuals on the Audio-Visual Center staff,
4. a failure to establish budget control and cost records for individual projects, and
5. a failure to establish completion schedules and product accountability for project directors.

It was the recurrence of these problems which led to the development of the following proposed control system.

ASSUMPTIONS UNDERLYING PROPOSED SYSTEM

Any operational procedure, if it is to be successfully implemented, must take into consideration the needs, desires, and philosophy of the organization for which it is designed. This section attempts to set forth some of the factors which must be considered in designing a control system for AVC funded R&D projects.

(1) That the Audio-Visual Center will continue to support all types of research and development activities.

R&D activities run on a continuum from what is known as "pure" research to "pure" development. In the past the A-V Center has supported through salaries, secretarial help, etc. a number of research studies while at the same time supporting a number of development projects. Given the placement of the Audio-Visual Center within the academic community of Indiana University and given the need of basing operational decisions on empirical data rather than intuition, there is no question of whether or not the A-V Center will continue to support research activities but rather the question is what research questions shall these efforts seek to answer and how shall they be controlled?

(2) That there should be a single control process for all research and development projects.

What has been envisioned is not separate control systems for research activities and for development activities, but rather a single system with a sufficient degree of flexibility to handle all types of R&D projects, whether they be pure R, pure D, big R and little d, little r and big D, or any other such combination. This was felt necessary in order to co-ordinate the various types of R&D activities and to eliminate possible confusion on

the part of individuals proposing projects over what is the entry point for their particular idea and what types of information are needed in order to initiate a decision on support.

(3) That there is a fundamental distinction between production and development activities.

The distinction would be in terms of the client for which the end product of the process is intended. In a production process the end product goes directly to the ultimate user of the product. In a development process, the end product would be an in-put to the production process. Using this distinction, the activities presently carried out by the Production Department of AVC are probably mis-labled as production and should more logically be classified as prototype development and as such are equivalent to the D portion of the term R&D. In the same sense, production, in the form of duplication of release prints, is in fact carried out by Calvin Labs under the direction of the Field Services Department of AVC. Another instance of production activities within the Audio-Visual Center would be the type of activity carried out by the Campus Service Sub-Centers, the Photo Lab, and Graphics where the various departments engage in a development process but where the end product goes directly to the final user rather than to a mass production and distribution network.

(4) That all members of the Audio-Visual Center professional staff are fully programmed.

This may be in either teaching duties within the Division of Instructional Systems Technology and other University divisions, operational activities of the Audio-Visual Center, or combinations of these

and other activities, such as contracts and/or individual grants. The major point of this assumption is that if new projects are to be mounted existing activities will have to be cut back or different methods of staffing these activities will have to be developed.

(5) That ideas and proposals for R&D activities from individuals other than the Audio-Visual Center staff will be accepted and supported.

The problem is to meet the needs of the operational activities for information rather than to find R&D activities to fill up the unprogrammed time of an R&D staff; therefore, it makes no difference who proposes the project. The important consideration is will the project help to satisfy an operational need?

(6) That there are a number of points at which the Audio-Visual Center might wish to begin support of a promising idea.

In a few cases the AVC would want to support the development of an idea into a formal proposal, while in most cases the Center would want a fully developed time table and budget before committing itself to any financial support.

PROPOSED CONTROL PROCESS

FIGURE ONE, on the following page, presents a basic model for the proposed system. The system can be divided into three major sections; Stage I which deals with the generation and initial screening of R&D ideas, Stage II which deals with the development and screening of R&D project proposals, and Stage III which deals with project execution and control. The remaining portion of this paper will look at each of these three stages in detail.

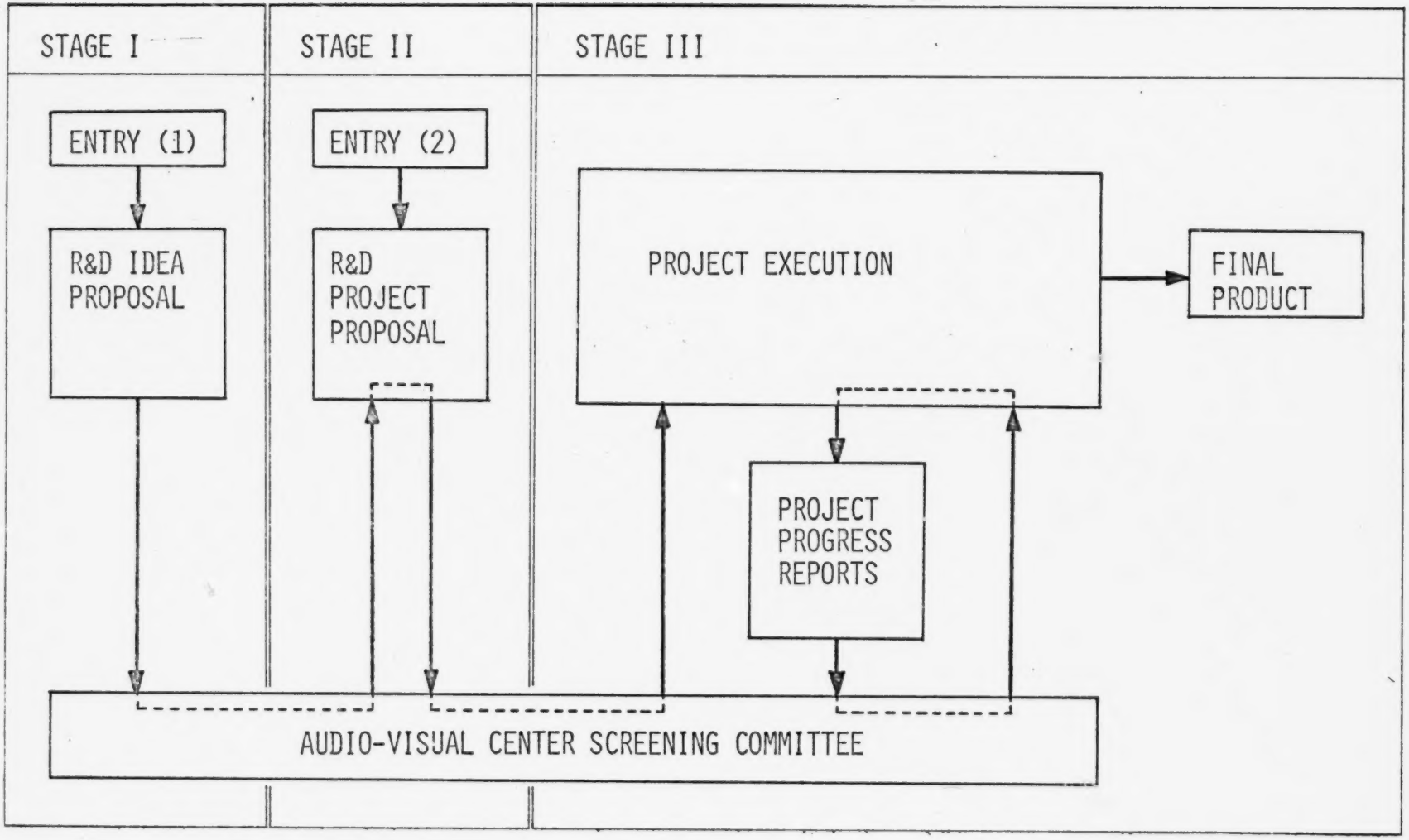


FIGURE ONE: Diagram of Proposed Control Process for Research and Development Projects within the Audio-Visual Center, Indiana University

STAGE ONE

The flowchart on the following page, FIGURE TWO, outlines the major steps and decision points within Stage I of the proposed control process. The following points, although not all of the possible points for discussion, are of major importance for an understanding of the operation of the proposed system:

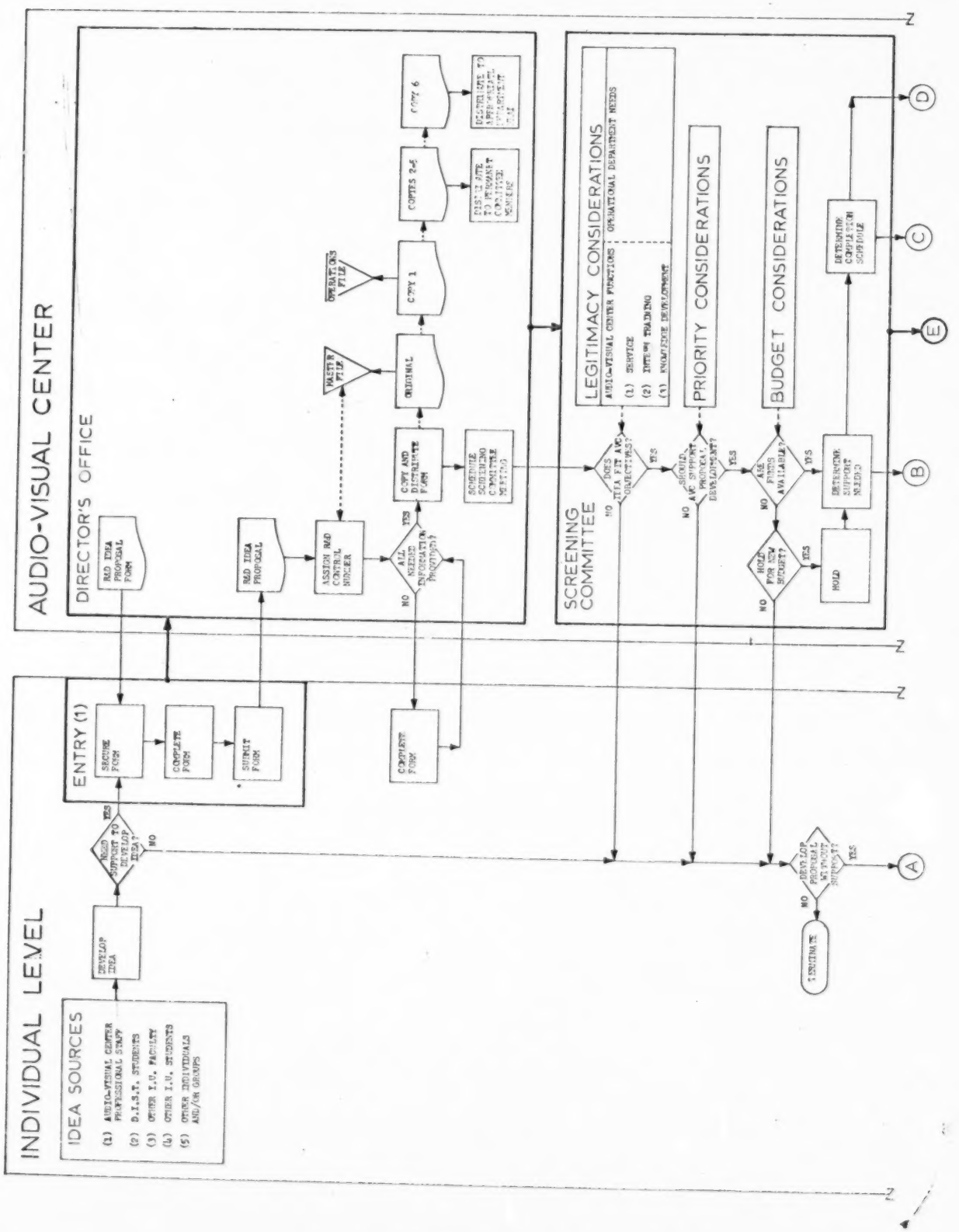
IDEA SOURCES: Any individual or group may propose an idea to the Audio-Visual Center for support as long as it is in the proper format and contains the information necessary to make a decision.

ENTRY (1): It is not necessary for the individual to enter the system at this point. He may well want to develop the idea through the proposal stage outside of the control system. Provision for such action is indicated on the left-hand side of the flowchart. Submission of the rough idea should only occur when the individual requires special financial support to develop the idea to the formal proposal stage.

R&D IDEA PROPOSAL FORM: A copy of the R&D Idea Proposal Form is attached as a supplement to this paper. It askes for four types of information: (1) a description of the idea, (2) the relation of the idea to AVC activities, (3) the support needed, and (4) a target date for completion of a formal proposal. The form also provides space for assigning the R&D control number and recording the decision of the Screening Committee.

R&D CONTROL NUMBER: Any R&D project, whether it is suggested as a rough idea or as a complete proposal, would be assigned a sequential R&D control number which would be used to identify the project through

FIGURE TWO: R&D Control Process, STAGE I, Idea Generation & Initial Screening.



the screening process and, if the project is approved for support, would be used to maintain cost records on the project. Such numbers would not be re-used but would be used to maintain a complete master file of R&D suggestions, both of rejected as well as approved projects. New numbers would be determined by consulting the master R&D file and assigning the first vacant number in sequence.

SCREENING COMMITTEE: The Screening Committee's function would be to approve and co-ordinate all R&D projects. It would consist of four permanent members (the Director of the Audio-Visual Center, the Associate Director for Operations, the Assistant Director for Research and Development, and the Head of the Instructional Research and Development Center) and a fifth member who would be the Head of the operational department of the AVC most closely identified with the particular project(s) under consideration. This fifth member would be constantly changing.

DECISION TO SUPPORT: The decision to support the development of an idea into a formal proposal would be based on three considerations: (1) legitimacy of the proposal in terms of Audio-Visual Center functions and operational department needs, (2) priority of the proposal in relation to other legitimate proposals, and (3) the availability of funds to support the idea. Considerations and problems involved in arriving at these decisions will be discussed in a later paper.

COMPLETION SCHEDULE: Once an idea has been approved by the Screening Committee and a budget has been established, a firm date for submission of a formal proposal must be established in order to prevent the activity of proposal development extending for an interminable length of time.

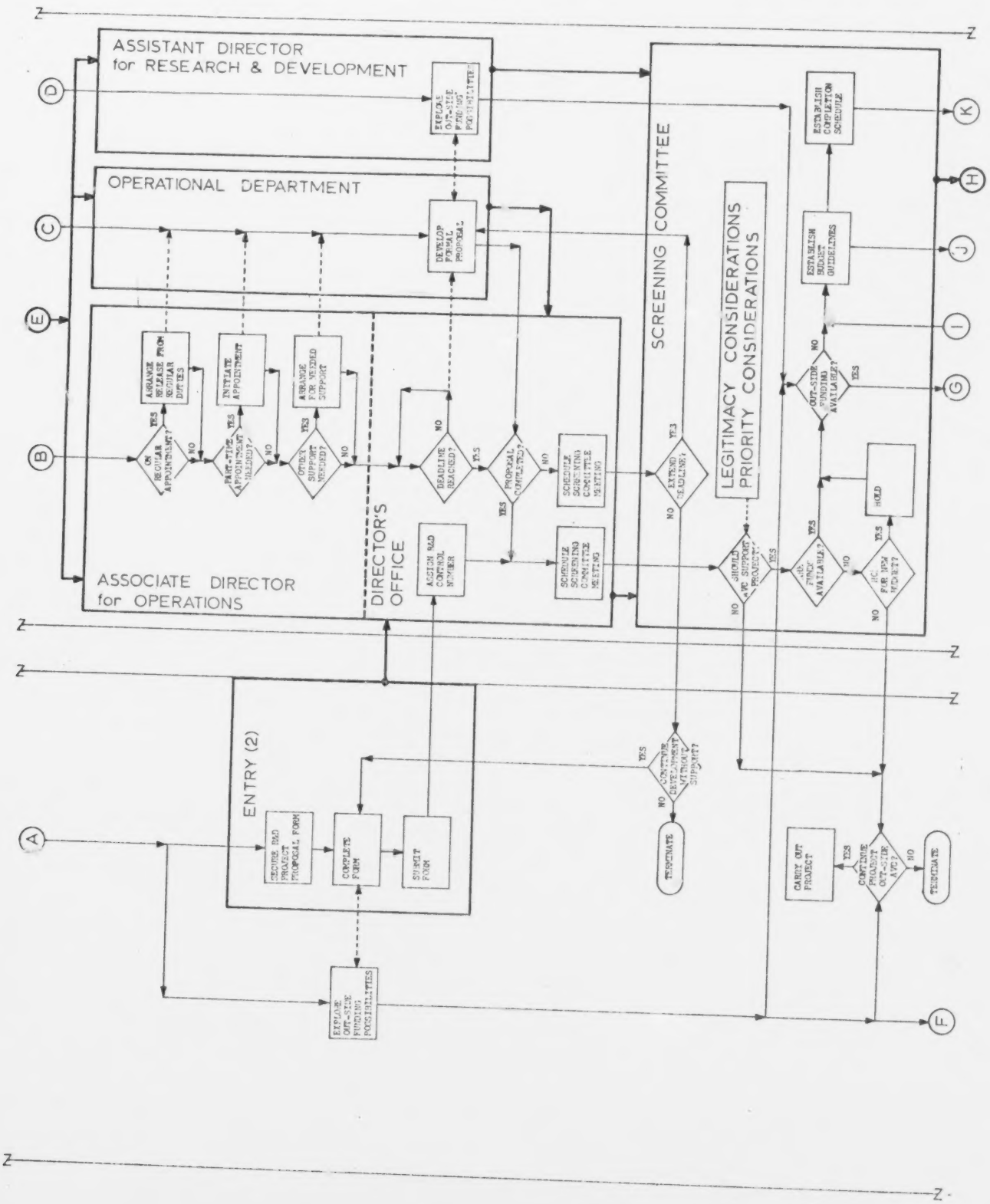
STAGE TWO

The flowchart on the following page, FIGURE THREE, outlines the major steps and decision points within Stage II of the proposed control process. The following points are of major interest:

EXPLORE OUTSIDE FUNDING: Even though the decision to support the development of an idea implies that the idea is of sufficient importance and usefulness that the Audio-Visual Center would be willing to support the project through operational funds, the possibility of expanding the amount of resources available for R&D activities through outside funding, even on only a partial basis, must not be overlooked. The project director and the Assistant Director for Research and Development would work together on this search.

R&D PROJECT PROPOSAL FORM: A copy of the R&D Project Proposal Form is attached as a supplement to this paper. The form asks the individual suggesting an R&D project for all information which would be necessary in order for the Screening Committee to reach a decision on committing AVC funds to the project. Most of the information requested in the form is self-explanatory; however, comment should be made concerning the columns headed 'EXPENDED ON THE PROJECT PRIOR TO THIS REPORT' on pages four and five of the form. If the system is instituted, this column would contain an estimate of all expenditures to date on current R&D projects. On new projects, it would only contain expenditures approved under Stage I of the control process. The R&D Project Proposal Form would only be filled out once in the life of a project; up-dating would be handled through the progress reports to be discussed later.

FIGURE THREE: R&D Control Process, STAGE II, Proposal Development and Screening.



EXTENSION OF DEADLINES: When an idea has been accepted for support in Stage I, a deadline is set by the Screening Committee for the completion of a formal proposal. If this deadline is not met, the Screening Committee must meet and decide if the deadline is to be extended and support continued. If support is discontinued, development of the proposal can be continued by the individual, as indicated in FIGURE THREE, and submitted for consideration at a later time.

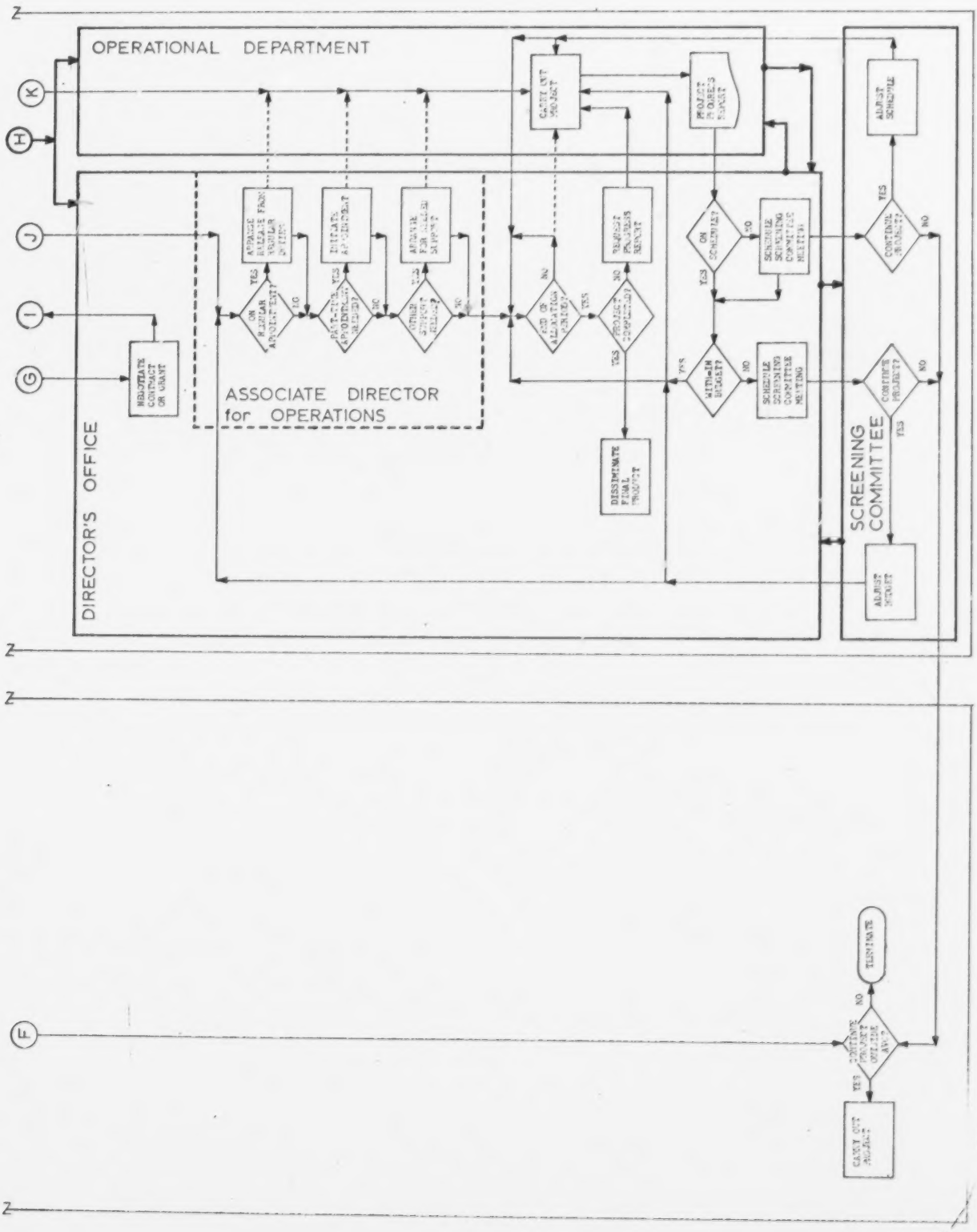
SCREENING COMMITTEE: The decision to support an R&D project is made by the same group and under the same constraints as the decision to support the development of an idea under Stage I. A decision to support the development of an idea under Stage I should not be considered a commitment to support the project once the proposal is completed. Each project should be considered in terms of its own merits and in relation to competing projects, not in terms of prior support.

BUDGET GUIDELINES AND COMPLETION SCHEDULE: When a project is approved for support under the Audio-Visual Center, the Screening Committee also approves a long-term budget, covering the life of the project, and a detailed schedule of events and steps leading to the completion of the project. The budget would be used by Administration in compiling yearly and biennial budgets. The budget and schedule become the key elements in the automatic control system under Stage III of the process.

STAGE THREE

The flowchart on the following page, FIGURE FOUR, outlines the major steps and decision points within Stage III of the proposed control process. The following points are of major interest:

FIGURE FOUR: R&D Control Process, STAGE III, Project Execution and Control.



CONTROL FUNCTION: The control of on-going projects under the proposed system would become a semi-automatic process. As long as the project is proceeding on schedule and within budget, there would be no need for Administration to interpose itself into the direction of the project. The status of the project in terms of budget and schedule would be obtained by means of the Project Progress Report which would be filled out by the project director near the end of each allocation period.

PROJECT PROGRESS REPORT: A copy of the Project Progress Report Form is attached as a supplement to this memo. It asks for three types of information: (1) progress-to-date, (2) goals for the coming period, and (3) support needed for the coming period. If the project is on schedule and within budget, the report would be filed, after consideration of necessary personnel redeployment, and the project would continue automatically. If the project exceeds the approved budget or gets off schedule, the Screening Committee would meet and decide whether to adjust the schedule and/or budget or to terminate the project.

ALLOCATION PERIOD: It is suggested that the period at which project progress is accessed should be shortly before the end of each semester and summer session. This is because the major resource to be considered is staff time, and decisions to deploy individuals against teaching within the Division of Instructional Systems Technology would need to be made at those times for the coming period.

DISSEMINATE FINAL PRODUCT: Although it is indicated on the control process as only one block, this is a major activity in which the AVC should spend much more effort, particularily in the area of research.

It should be noted that the control system described above would only apply to those R&D projects supported wholly or in part by Audio-Visual Center funds. It does not prevent individuals affiliated with the AVC from developing other types of R&D activities as a portion of their teaching load, on their own time, or under other financial arrangements, such as independent grants or contracts.

SUPPLEMENTS

The attached forms are rough drafts of forms designed for use in the proposed control process for research and development projects within the Audio-Visual Center, Indiana University.

(1) R&D IDEA PROPOSAL form .....page 15

(2) R&D PROJECT PROPOSAL form .....pages 16-21

(3) PROJECT PROGRESS REPORT form .....page 22

R&D IDEA PROPOSAL

Applicant: Department: Date Submitted:	THIS SPACE FOR A-V CENTER USE ONLY Control Number Approved ☐ Not Approved ☐ Report Due Date

WORKING TITLE FOR PROPOSAL:

GENERAL DESCRIPTION OF IDEA:

RELATIONSHIP OF IDEA TO GOALS AND ACTIVITIES OF THE AUDIO-VISUAL CENTER AND THE FIELD OF INSTRUCTIONAL TECHNOLOGY:

SUPPORT REQUESTED TO ENABLE DEVELOPMENT OF FORMAL PROPOSAL:

TARGET DATE FOR COMPLETION OF FORMAL PROPOSAL:

R&D PROJECT PROPOSAL

Audio-Visual Center
Indiana University

A copy of this report form is to be filled out for all short and long-term projects engaged in by departments and/or personnel of the Audio-Visual Center, Indiana University.

For the purposes of this report, a project is defined as any activity with an anticipated termination date which carries a cost, including salaries, of more than $500.

The report form contains 5 major sections:

PROJECT IDENTIFICATION
PROJECT DESCRIPTION
PROCEDURES AND TIME SCHEDULE
PROPOSED BUDGET
EXPENSE RECOVERY AND JUSTIFICATION

Responsibility for filling out the report falls on the project director in conjuction with the department head(s) of the Audio-Visual Center having administrative responsibility for the project.

IDENTIFICATION OF PROJECT

(1) Project Identification Number _____

(2) Project Title _____

(3) Project Director(s)....Who has immediate responsibility for the direction and completion of the project?

_____

_____

(4) Administrative Co-ordination....Which operational department(s) of the Audio-Visual Center has administrative responsibility for the project? If the project is not an A-V Center sponsored project, which University department or division is the sponsor of the project?

_____

_____

PROJECT DESCRIPTION

(1) General Goals of Project....What does the project hope to achieve? Include a description of the target audience(s) and a justification of the need for the project.

(2) Specification of Final Product....In the case of production projects, is the product to be a 16mm film, a slide set, etc. In R&D projects, the final product might take the form of a formal publication, an improved procedure for making decisions, etc.

(3) Evaluation of Product....How do you propose to measure the effectiveness of the product? What procedures and test population will be employed?

PROCEDURES AND TIME SCHEDULE....Describe the basic procedures to be employed in the project and outline a tentative schedule for implementation and completion of the various stages.

PROPOSED BUDGET

(1) Personnel....Provide a break-down of human resources expended and committed to the project. All amounts in these columns are to listed as man-day equivalents. For example, a graduate assistant on a 15 hour, 10 month appointment working full-time on the project would be equivalent to 65 man-days. When specific man-day amounts are not know, estimated ranges may be used.

PERSONNEL...list individuals when known.	EXPENDED ON THE PROJECT PRIOR TO THIS REPORT	PROJECTED EXPENDITURE ON THE PROJECT		
		Fiscal Year 19__ to 19__	Fiscal Year 19__ to 19__	Fiscal Year 19__ to 19__
Professional Staff				
Graduate Assist				
Clerical & Staff				
Hourly				
MAN-DAY TOTALS				

FOR ADMINISTRATION USE ONLY				
GRC'S DOLLAR EQUIVALENTS				

(2) Dollar Costs....Provide a break-down of budget items (other than salaries) expended and committed to the project. All amounts are to be listed in the various columns as gross dollar values. When specific values are not know, estimated ranges may be used. Items within the three main classifications (supplies, travel, & equipment) should be described in accordance with departmental agreements with administration.

EXPENSE ITEM	EXPENDED ON THE PROJECT PRIOR TO THIS REPORT	PROJECTED EXPENDITURE ON THE PROJECT		
		Fiscal Year 19__ to 19__	Fiscal Year 19__ to 19__	Fiscal Year 19__ to 19__
Supplies				
Travel				
Equipment				
TOTAL DOLLAR COSTS				

FOR ADMINISTRATION USE ONLY				
TOTAL COST OF PROJECT				
AMOUNT OF OUT-SIDE SUPPORT				
COST TO AUDIO-VISUAL CENTER				

EXPENSE RECOVERY AND JUSTIFICATION.....Although the information requested on this portion of the report is divided into three seperate groups, it is recognized that any one project could combine aspects of all three classifications and should be so described.

(1) Marketing Prospects...Make an appraisal of the marketability of the potential product(s). This may include an evaluation as to costs and prospects for sales, rental, and other distribution.

(2) Outside Funding.....Describe any grants and/or contracts connected with the project, including obligations placed upon the Audio-Visual Center by the funding organization.

(3) Audio-Visual Center Funding Justification....If the Audio-Visual Center is to fund all or part of the project, justify the expenditure in terms of A-V Center programs, goals, and needs.

PROJECT PROGRESS REPORT

A copy of this report form is to be filled out for each authorized Audio-Visual Center project, by the project director, at least one month before the beginning of each academic period.

Project Identification Number:_____

Project Title:_____

Project Director:_____ Date of Report:_____

(1) Progress to Date....If the anticipated goals for the period now completing can not be achieved, attach a statement describing the difficulties encountered and outline steps needed to be taken to put the project back on schedule.

(2) Goals for the Coming Period....Describe in detail, providing initiation and and completion dates when possible, the anticipated project goals for the coming academic period.

(3) Support Needed....List the man-days and other resources needed to achieve the anticipated project goals during the coming period.

PERSONNEL REQUIREMENTS	OTHER RESOURCE REQUIREMENTS
Professional Staff	Supplies
Graduate Assistants	
Clerical and Staff	Travel
Hourly	Equipment